

1. An apparatus for peer recovery, the apparatus comprising:
 - a detection module configured to detect a failure of a first computer;
 - a recovery coordination module configured to accept and reject requests from a recovery module to register as the counterpart of the first computer, and unregister the recovery module as the counterpart of the first computer upon request; and
 - a recovery module configured to register with the recovery coordination module as the counterpart of the first computer, perform a recovery operation of the first computer, and unregister with the recovery coordination module as the counterpart of the first computer responsive to the detection module detecting the failure of the first computer.
2. The apparatus of claim 1, wherein the recovery module initiates peer recovery automatically.
3. The apparatus of claim 1, wherein the recovery module initiates peer recovery responsive to an operator command.
4. The apparatus of claim 1, the recovery module comprising:
 - an initialization module configured to initialize and start the counterpart of the first computer; and
 - a backout module configured to retrieve private log data of the first computer, back out an in-flight transaction update, and release a data resource locked by the first computer.

5. The apparatus of claim 1, wherein the detection module, the recovery coordination module, and the recovery module reside within a second computer.

6. The apparatus of claim 1, wherein upon the receipt of a request for registering as the counterpart of the first computer, the recovery coordination module changes the status of the recovery module of the first computer from inactive to active.

7. The apparatus of claim 1, wherein the recovery coordination module rejects a request for registering as the counterpart of the first computer once the status of the recovery module of the first computer is made active.

8. The apparatus of claim 1, wherein upon the receipt of a request for unregistering as the counterpart of the first computer, the recovery coordination module changes the status of the recovery module of the first computer from active to inactive.

9. The apparatus of claim 1, the detection module further comprising a log list module configured to receive a status signal from at least one computer, wherein the detection module identifies the failed computer when the log list module does not receive the status signal from the failed computer within a pre-specified time interval.

10. A system for cluster-wide peer recovery, the system comprising:
 - a first computer;
 - a second computer in communication with the first computer configured to detect a failure of the first computer, wherein the second computer registers as the counterpart of the failed first computer, recovers the operation of the failed first computer, and unregisters as the counterpart of the failed first computer;
 - a shared memory controller in communication with the first computer and the second computer configured to store and retrieve computer component status and log data, the shared memory controller further configured to prevent unauthorized access to private log data and to lock data resources; and
 - a disk configured to store and retrieve user data and system data in the disk's storage media for the cluster.
11. The system of claim 10, the second computer further configured to initiate peer recovery automatically.
12. The system of claim 10, the second computer further configured to initiate peer recovery responsive to an operator command.
13. The system of claim 10, wherein the shared memory controller comprises a dedicated processor and a memory module.
14. The system of claim 13, wherein the memory module is nonvolatile memory.

15. The system of claim 10, the second computer further configured to recover the operation of the first computer by initializing and starting the counterpart of the first computer, retrieving the private log data of the first computer, backing out an in-flight transaction update of the first computer, and releasing a data resource locked by the first computer.

16. The system of claim 10, the second computer further configured to block a third computer and the first computer from registering as the counterpart of the first computer.

17. The system of claim 10, wherein the first computer and the second computer communicate point-to-point, using a channel-to-channel communication connection comprising an inbound signaling path and an outbound signaling path.

18. The system of claim 10, wherein the computers use a symmetric multiprocessor configuration.

19. The system of claim 10, wherein the computers use an asymmetric multiprocessor configuration.

20. A computer readable storage medium comprising computer readable code configured to carry out a method for peer recovery, the method comprising:

detecting a failure of a first computer;

registering a counterpart of the first computer;

recovering the operation of the first computer by the counterpart;

and

unregistering the counterpart of the first computer.

21. The computer readable storage medium of claim 20, the method further comprising computer readable code configured to initiate the peer recovery automatically.

22. The computer readable storage medium of claim 20, the method further comprising computer readable code configured to initiate the peer recovery responsive to an operator command.

23. A computer readable storage medium of claim 20, the method for recovering the operation of the first computer by the counterpart further comprising:

initializing and starting the counterpart;

retrieving private undo log data of the first computer;

backing out an in-flight transaction update of the first computer;

and

releasing a data resource locked by the first computer.

24. The computer readable storage medium of claim 20, the method further comprising blocking the recovery modules of a third computer and the first computer from registering as the counterpart of the first computer.

25. A method for peer recovery, the method comprising:
- detecting a failure in a first computer;
 - registering a counterpart of the first computer;
 - recovering the operation of the first computer by the counterpart;
- and
- unregistering the counterpart of the first computer.

26. The method of claim 25, the method further comprising blocking the recovery modules of a third computer and the first computer from registering as the counterpart of the first computer.

27. The method of claim 25, the method of recovering the operations of the first computer by the counterpart further comprising:

initializing and starting the counterpart of the first computer;
retrieving private undo log data of the first computer;
backing out an in-flight transaction update of the first computer;

and

releasing a data resource locked by the first computer.

28. The method of claim 25, further comprising initiating peer recovery automatically.

29. The method of claim 25, further comprising initiating peer recovery responsive to an operator command.

30. A apparatus for peer recovery, the apparatus comprising:

means for detecting a failure of a first computer;
means for registering a first counterpart of the first computer;
means for blocking a second counterpart from registering as the counterpart of the first computer;
means for recovering the operation of the first computer by the first counterpart; and
means for unregistering the first counterpart of the first computer.